Chapter 3

Control

The test of control is the ability of the leader to obtain the desired reaction from his command

Infantry in Battle, 1939

Whereas command pertains to an individual, control is systemic; it involves the whole force, especially those who are part of the command and control system. The authority of command provides the basis for control. Without command, control would not exist. Control serves commanders, allowing them to regulate forces and battlefield operating systems. Control is mostly science, but also includes some art. It employs objective data, analytic processes, and scientific methods and theories in assessing, planning, preparing for, and executing operations. Control allows commanders to monitor their forces, the enemy, and the environment during operations. Through this monitoring, they identify new decision points, opportunities to exploit success, and threats to mission accomplishment. Control permits commanders to adjust operations to account for changing circumstances by modifying one or more of the results of their commander's visualization and directing the changes necessary to address the new situation.

NATURE OF CONTROL

3-1. The nature of control, including why it is even necessary, begins with its definition. It involves the elements and principles of control that guide applying the elements of control within command and control (C2). **Within command and control, *control* is the regulation of forces and battlefield operating systems to accomplish the mission in accordance with the commander's intent. It includes collecting, processing, displaying, storing, and disseminating relevant information for creating the common operational picture, and using information, primarily by the staff, during the operations process.** Control allows commanders to direct the execution of operations to conform to their commander's intent. Unlike command functions—which remain relatively similar among echelons of command—control functions increase in complexity at each higher echelon.

CONTENTS

Control extends over the entire force and includes the airspace over the area of operations (AO). Commanders, from company to corps, control their forces and are, in turn, influenced by these forces. (See figure 3-1.)

3-2. Impediments to mission accomplishment that act before, during, and after operations create the requirement for control. These impediments include the enemy, the environment, and the "friction" of war.

3-3. First and foremost among these impediments is the enemy. Enemies may act against the friendly commander personally, the commander's C2 system, or friendly forces. They may use lethal weapons or execute operations that produce nonlethal effects, such as information operations (including military deception). The second impediment to mission accomplishment is the environment. The often unpredictable impact of these first two impediments constitutes what Clausewitz meant by the "fog" of uncertainty characteristic of war. (See paragraph 1-39.) He described it by saying:

> *Many intelligence reports in war are contradictory; even more are false, and most are uncertain.…reports turn out to be lies, exaggerations, errors, and so on.*

3-4. The final impediment to mission accomplishment is the actions of friendly forces themselves. The specific manifestations are human error, mismanagement of information, equipment limitations, and the "physics" of executing an action. These unanticipated manifestations compose what Clausewitz called the "friction" of war. Their effects on the C2 system and employed forces often cause deviations from the plan during execution. (See figure 3-1.) Clausewitz characterized these effects as follows:

> *Everything in war is very simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction that is inconceivable unless one has experienced war…. Friction…makes the apparently easy so difficult.*

3-5. Nonlinear interactions characterize control during operations. Extremely small influences can have large, unpredictable effects on military organizations. Interactions among organizations and people—both within and outside the chain of command—occur randomly throughout the command. Soldiers and organizations interact—with the enemy, the environment, and each other—frequently, freely, and unpredictably. This makes control an open system, which means the behavior of a force cannot be isolated from the factors affecting it. In addition, a force's components (including soldiers), behave organically, like living beings, rather than mechanically, like parts of a well-oiled machine. This behavior further complicates control.

3-6. Commanders, aided by staffs, use control to regulate forces and the functions of subordinate and supporting units. Staffs give commanders their greatest support in providing control. However, for control to be effective, commanders must actively participate in exercising it. One of mission command's strengths is that it provides a measure of self-regulation within organizations executing operations.

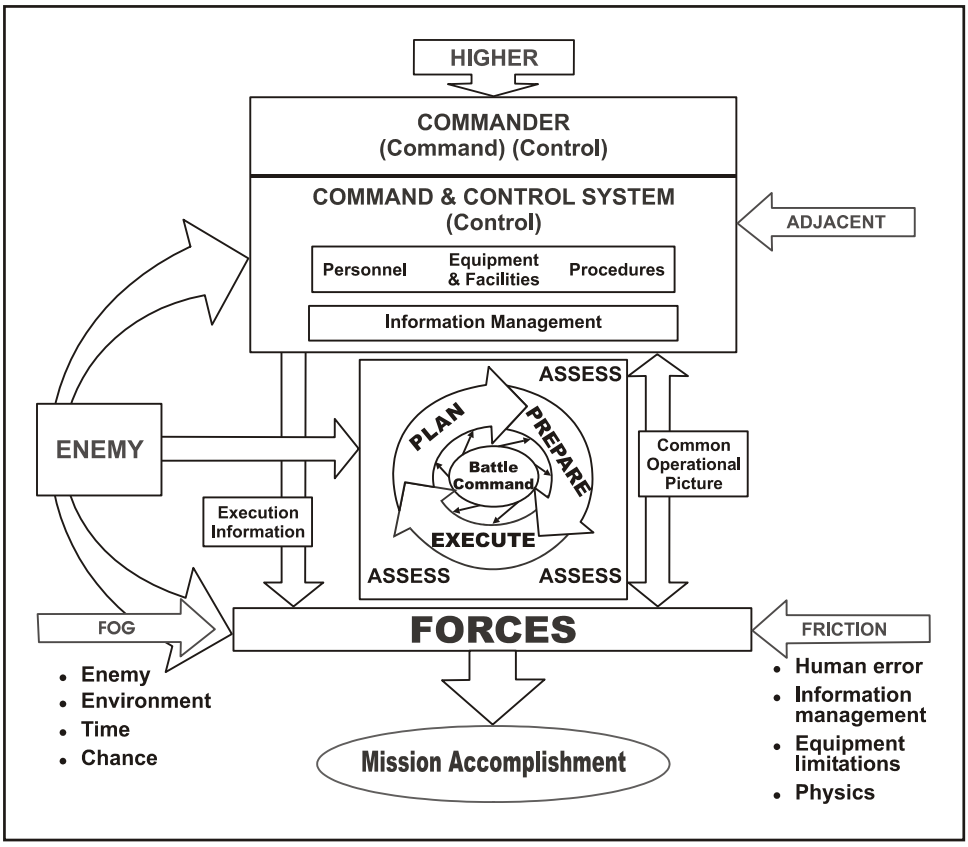


Figure 3-1. Control

3-7. In the broadest terms, control helps commanders answer two fundamental questions:

- What is the actual situation compared with the desired end state?
- Are adjustments to the plan necessary to reconcile the situation with the desired end state?

A C2 system performs three basic functions to answer these questions. (See figure 3-2, page 3-4.) First, it helps commanders achieve situational understanding by using IM to create the COP (common operational picture) and disseminate it throughout the force. It does this by acquiring relevant information (RI) and categorizing it in terms of the factors of METT-TC. (See paragraphs 3-39–3-47.) Second, it regulates forces and battlefield operating systems (BOSs) by supporting commanders' decisionmaking as they develop, analyze, select, and refine courses of action (COAs). Commanders then execute their decisions—preparing and disseminating orders to subordinate forces. Third, it allows the force to adapt to change throughout the operations process (assessing, planning, preparing for, and executing operations).

3-8. An effective C2 system allows the commander to—

- Operate freely throughout the AO to exercise C2 from anywhere on the battlefield.
- Delegate authority to subordinate commanders and staff to allow decentralized execution of operations.

- Synchronize actions throughout the AO.
- Focus on critical actions instead of details.

Support Achieving Situational Understanding	Regulate Forces and Operating Systems	Allow the Organization to Adapt to Change
• Determine and dynamically adjust requirements. • Collect, process, display, store, and disseminate information. • Assess the status and performance of subordinate units and the overall force. • Anticipate opportunities or threats in execution, through intelligence preparation of the battlefield, indications and warnings, and situation development.	• Support the commander's decisionmaking. • Define limits. • Allocate resources to requirements and tasks. • Direct operations by producing and disseminating orders. • Acquire means to accomplish the mission. • Develop specific directives from general guidance from the commander.	• Forecast change in friendly, enemy, or environmental situations; determine the meaning of that change. • Identify variances in performance from the concept of operations. • Report significant changes in the situation to the commander.

Figure 3-2. Control Functions of the Command and Control System

3-9. Control includes functions normally associated with management, primarily when it concerns efficient and effective resource allocation. Management is inherent in C2, but lacks the extensive authority and responsibility of command. While management techniques may assist commanders in making decisions and leading, they are not sufficient to accomplish missions.

ELEMENTS OF CONTROL

3-10. Control allows commanders to disseminate the two types of information: COP-related information and execution information. It also lets them adjust operations to reflect changing reality and enemy actions. This capability allows commanders to modify the commander's visualization with respect to the current state, the end state, or the process of getting from the current state to the end state. Effective control further identifies times and points requiring new decisions during execution. The elements of control are—

- Information.
- Communication.
- Structure.

Information

3-11. **In the general sense, *information* is the meaning humans assign to data.** It is the most important element of control. Information includes all forms of description or representation at any level of the cognitive hierarchy. (The levels of the cognitive hierarchy are data, information, knowledge, and understanding. See appendix B.) Information gives structure and shape to military operations and the battlespace. Commanders and staffs can then give meaning to and gain understanding of the events and conditions in which they make decisions and conduct operations.

3-12. *Relevant information* is all information of importance to the commander and staff in the exercise of command and control (FM 3-0). (Intelligence is a subset of relevant information.) An *operational picture* is a single display of relevant information within a commander's area of interest (FM 3-0). A *common operational picture* is an operational picture tailored to the user's requirements, based on common data and information shared by more than one command (FM 3-0). Data and information from all echelons of command and shared among all users create the COP. (See paragraphs 3-30–3-32.) Although ideally the COP is a single display, it may include more than one display and information in other forms. By applying judgment to the COP, commanders achieve situational understanding, upon which they base decisions. However, maintaining an accurate COP is complex and difficult.

3-13. Friction within the COP has many sources; for example, delays in receiving intelligence as compared to friendly force information, the complexity of the terrain, the uncertainty of the weather, and a large number of civil considerations. Staffs also have to struggle with portraying meaning and the necessary level of detail without overloading their commander. Commanders direct by disseminating execution information, typically as orders and plans, to implement their decisions; they receive feedback from subordinates and supporting forces in the process. This reciprocal influence between commanders and subordinates allows commanders to keep in touch with the situation. It also helps commanders and subordinates maintain a shared situational understanding.

3-14. One important piece of information for commanders is whether their subordinates understand the commander's intent. Commanders who are assured their subordinates understand the commander's intent may require less detailed information from them. If subordinates do not understand the commander's intent, the commander requires more information from them and gives them less latitude in making decisions. Commanders use training to see how subordinates interpret the commander's intent in different situations.

Communication

3-15. To *communicate* means to use any means or method to convey information of any kind from one person or place to another (JP 1-02). (*Communications* are means of communicating, such as telephones.) Communication allows units/organizations to disseminate and share information among people, elements, and places. It links information to decisions and decisions to action. No decision in combat can be executed without clear communication between commanders and subordinates. Communication among the parts of a command supports their coordinated action. The communication that characterizes effective control is multidirectional. (See figure 3-1, page 3-3.) Effective communication is critical to achieving effective C2.

3-16. How commanders communicate contributes to or detracts from leading. Communication is the means through which commanders exercise immediate and personal control over their forces. In general, intense, unconstrained communication—the free and unhindered sharing of meaningful information throughout the force—characterizes effective communication. Because

military operations require collective efforts, effective communication is imperative.

3-17. A major purpose of communication lies in sharing images, particularly the commander's intent. It is essential for commanders to communicate their commander's intent, whether verbally or with illustrations or analogies. General of the Army Omar Bradley understood that "Congress can make a general, but only communication can make a commander."

3-18. Communication has an importance far beyond exchanging information. Separate from the quality or meaning of information exchanged, communication strengthens bonds within a command. It is an important factor in building trust, cooperation, cohesion, and mutual understanding.

Structure

3-19. As an element of control, *structure* is a defined organization that establishes relationships among its elements or a procedure that establishes relationships among its activities. The commander establishes control with a defined organization and its relationships. This structure or organization is both internal (for example, a headquarters structure—the command post [CP]) and external (for example, command and support relationships among subordinate forces). The most basic organization in control is a hierarchy. In military terms, this relationship is between the commander and staff, and subordinate forces. (See chapter 5.)

3-20. Structure also determines interactions among the elements of the organization, whether units or individuals. The effects of these interactions affect collecting, disseminating, and processing information.

PRINCIPLES OF CONTROL

3-21. The principles of control govern how commanders and their C2 systems use the elements of control to carry out functions of control. Control permits a command to adapt to change. Because of feedback, control is cyclic and continuous, not a series of discrete actions. It is a process of dynamic, interactive cooperation. Control continues throughout the operations process. The principles of control are—

- Allow subordinates maximum freedom of decision and action.
- Create, maintain, and disseminate the COP.
- Use common doctrinal procedures, graphics, and terms.
- Provide for flexibility and adaptability.

Allow Subordinates Maximum Freedom of Decision and Action

3-22. Effective commanders impose minimum constraints on subordinates. They exercise only the control necessary to give subordinates the guidance and resources needed to accomplish assigned tasks. This principle, however, includes exercising the control necessary for proper, if imperfect, coordination.

3-23. This principle directly supports exercising mission command. Mission command relies on mission orders, shared situational understanding, open communication of RI, and flexible procedural control. These techniques allow

subordinates freedom of action to exercise subordinates' initiative within the commander's intent.

3-24. Under mission command, doctrine, established procedures, and the commander's intent provide the basis for implicit coordination. However, essential coordination always requires some control measures. Commanders exercise the least restrictive procedural control, consistent with the capabilities of subordinates and their organizations.

3-25. In most instances, front-line commanders know the most about their forces and the environment, and have the clearest understanding of their own situations. They are, therefore, better suited than higher commanders to develop those situations. Even two or more subordinate commanders working together may solve a problem better and faster than the higher commander. This type of coordination, involving direct communication among subordinate commanders is critical for effective C2. Commanders emphasize this principle of control, and the implicit requirement to exercise subordinates' initiative, at every opportunity.

3-26. *Overcontrol* results when commanders establish excessive limits on the subordinates' freedom of action. Some commanders try to achieve the massed effects espoused by the Army's operations doctrine by using detailed command methods. Doing this may result in overcontrol. Overcontrol takes two forms: tactical overcontrol and excessive requests for information.

3-27. Tactical overcontrol consists of issuing excessively detailed orders initially or giving excessive direction during execution. It inhibits subordinates' initiative and tires commanders by referring too many decisions to them. Tactical overcontrol may also result from emphasis on procedure or process rather than on outcome—on efficiency rather than effectiveness. The guiding precept is that minimum essential coordination achieves mission success.

3-28. Excessive requests for information distract subordinates from executing their operations. They can also affect the requesting unit, because it must process the responses. One cause of excessive requests is the search for perfect situational understanding. Another stems from poor IM. No one can predict all information requirements (IRs) before operations begin; however, commanders and staffs must balance new IRs against the effect that finding and providing that information will have on subordinates' operations. Excessive and redundant IRs create unnecessary stress or fatigue for subordinate units. This situation may result in their failing to respond to an important IR and depriving the higher commander of information needed to make decisions.

3-29. Commanders consider the following precepts when deciding how to exercise control:

- Limit control measures to those necessary to effect essential coordination.
- Limit IRs to the minimum needed to exercise C2.
- Give subordinates as much leeway for initiative as possible consistent with keeping operations synchronized and maintaining enough situational understanding to restore the situation, if necessary, or to exploit opportunity.

Create, Maintain, and Disseminate the Common Operational Picture

3-30. Relevant information provides the basis for constructing the COP. The COP facilitates collaborative planning and helps commanders at all echelons achieve shared situational understanding. Shared situational understanding allows commanders to visualize the effects of their decisions on other elements of the force and the overall operation. Commanders apply judgment to the COP to achieve the situational understanding needed to make decisions. Under mission command, subordinates use the COP in conjunction with the commander's intent to guide their exercise of subordinates' initiative. Digital, analog, or mixed digital/analog forces can use the concept of the COP. Each applies the concept differently based on available resources.

3-31. Commanders achieve situational understanding by applying judgment to the COP. Doing this is neither simple nor automatic. The COP consists primarily of knowledge, which the staff provides through analysis and evaluation. Accurate, timely intelligence—a major category of this knowledge that the intelligence BOS produces—is indispensable to a complete COP and achieving accurate situational understanding. Intelligence—supported by ISR (intelligence, surveillance, and reconnaissance) synchronization—is a critical, integrated part of C2. Its contributions to the COP support all BOSs. Sharing of knowledge through the COP contributes to achieving a more complete, timely, and comprehensive shared situational understanding. An accurate COP ensures commanders' situational understanding accurately reflects the actual situation.

3-32. This concept of combining inputs to create a COP applies to both digital and analog CPs. All CPs maintain an operational picture based on information that comes into them. By collaborating and sharing RI, and tailoring it to their needs, separate echelons create their own operational picture or the COP, as the situation requires. The difference between an operational picture and a COP is that, in a digital environment, all CPs draw on a common set of RI available within a shared database. With that RI, they create the portion of the COP that shows what their commanders want to know. Rapidly sharing RI among higher headquarters and subordinate, adjacent, supporting, and supported forces creates a COP throughout the force. In an analog environment, a CP is limited to the information it physically has on hand. Much of the creation of a COP is done manually, and it is harder to update, disseminate, or tailor dynamically to user requirements. Nevertheless, the concept of the COP still applies. The use of reproduced overlays or gathering subordinates around a common map or graphic are examples of applying the COP concept in analog CPs.

Use Doctrinally-based TTP, Graphics, and Terms

3-33. Language used in communicating should be simple, clear, and easily understood. An understanding of common doctrinal procedures, graphics, and terms contributes to the simplicity and clarity essential to mutual understanding. Using correct doctrinal procedures, graphics, and terms shortens the amount of explicit communication needed to convey or explain an order or plan. However, during stability operations and support operations, staffs may need to create nonstandard graphics or modify existing graphics to portray

the environment, an adaptive enemy, or other elements. They should do this only when standard graphics are unsuitable.

3-34. This principle does not imply unthinking adherence to every aspect of doctrine in inappropriate situations. Rather, it means that commanders consider all levels of doctrinal requirements and limitations before directing a nondoctrinal action. When time permits, they explain their reasoning to their subordinates. Soldiers understand a creative, but nondoctrinal, solution to a tactical problem when it is explained using doctrinal terms and tactics, techniques, and procedures (TTP).

Provide Flexibility and Adaptability

3-35. Control allows organizations to respond to change, whether due to enemy or friendly actions, or to situations. Control provides flexibility and adaptability (being able to recognize and respond effectively to emerging conditions, and to correct for the effects of fog and friction). It provides information that allows commanders to base decisions and actions on the results of friendly and enemy actions, rather than rigid adherence to the plan. Commanders build flexibility and adaptability into their plans. (See paragraph 4-13.)

3-36. Control supports flexibility and adaptability in two ways. First, it identifies the need to change the plan. It does this through anticipating or forecasting possible enemy actions, and by identifying unexpected variances—opportunities or threats—from the plan. (See paragraphs 6-11–6-16.) This occurs throughout the operations process. Second, control helps commanders develop and implement options to respond to these changes in a timely manner. Flexibility and adaptability reduce the enemy's available options while maintaining or expanding friendly options. Effective control provides for timely action before enemies can accomplish their objectives. Control allows the C2 system to guide modification of plans and actions as the situation and commander's situational understanding change.

3-37. To help commanders fight the enemy and not the plan, control orients on information about emerging conditions. Control provides flexibility by—

- Allowing friendly forces to change their types and forms of operations (see FM 3-90), their task organization, or their plan.
- Producing information about options to respond to changing conditions.
- Communicating the commander's decisions quickly and accurately.
- Providing for rapid BOS resynchronization when the plan changes during execution.
- Allowing collaborative planning to respond to the progress of operations.

SCIENCE OF CONTROL

3-38. Control, as contrasted with command, is more science than art. As such, it relies on objectivity, facts, empirical methods, and analysis. Control emphasizes anticipation in the form of forecasting to perform the functions discussed earlier. (See figure 3-2 on page 3-4.) Higher echelon commanders have staffs to help them perform control functions. In units without staffs,

commanders employ as much control as time permits. The science of control includes the following:

- Information management.
- Communications.
- Forms of control.

INFORMATION MANAGEMENT

3-39. Information management is a component of all C2 systems. It is a contributor to information superiority. (See FM 3-0.) IM consists of two elements: information systems (INFOSYS) (see paragraphs 5-38–5-58) and RI (see paragraphs B-10–B-54). The following section discusses IM with respect to the C2 BOS. Decisionmakers in other BOS use BOS-specific IM cycles to develop and manage the RI they need. The intelligence system, for example, uses the intelligence cycle to provide IM for intelligence.

3-40. *Information management* is the provision of relevant information to the right person at the right time in a usable form to facilitate situational understanding and decisionmaking. It uses procedures and information systems to collect, process, store, display, and disseminate information (FM 3-0). IM provides structure through which to process and communicate information and to put decisions into action.

3-41. Commanders can neither make decisions nor act to implement them without information. The amount of information that is available today and will be in the future makes managing information and turning it into effective decisions and actions critical to success during operations. Since effective C2 depends on getting RI to the right person at the right time, IM is crucial to C2. Effective IM determines RI, processes data into information and then knowledge, and quickly routes it to those who need it. Commanders and staffs assess the effectiveness of IM by considering whether it lessens the fog of war.

3-42. IM narrows the gap between RI commanders require and the RI they have. C2 systems manage information for one overriding purpose—to enable commanders to make timely decisions in spite of the fog and friction of operations. All information given to commanders must be RI; that is, commanders should only receive information they need to exercise C2. Staffs ensure this RI is accurate, timely, usable, complete, precise, and reliable.

3-43. The information commanders receive drives how they visualize the operation. How RI fits into the commander's visualization determines its value. In turn, the commander's visualization drives what information commanders seek. Commanders state the RI they need by establishing the commander's critical information requirements (CCIR). (See paragraphs B-68–B-72.) Staffs must understand the commander's intent and CCIR to provide the information commanders need to make decisions and maintain an accurate situational understanding.

3-44. Tactical operations produce large amounts of information. While much of this information is RI for others in the C2 system, it may not be RI for the commander. For example, coordinating staff officers require different information to perform their functional responsibilities than the commander does

to exercise C2 over the entire force. In each case, RI provides the information individual decisionmakers need to perform their C2 functions. Commanders and staffs who understand this can avoid information overload by establishing criteria for which information to present to the commander. Guidance on these criteria must come from the commander personally. In most cases, this guidance is the CCIR.

3-45. Effective IM facilitates the rapid flow of information in all directions. Improvements in the technical means for distributing information will allow users to quickly identify RI among the mass of information the C2 system processes. This capability will help prevent information overload. These improvements will also help commanders communicate their commander's intent and the concept of operations clearly and quickly.

3-46. Effective IM facilitates communications vertically (within the chain of command) and horizontally (among subordinate, adjacent, supporting, and supported units). Redundancy in transmission paths safeguards against disruption and battle damage. However, the transmission path information follows is less important than whether it reaches the right destination at the right time in a usable format. The ability of technical systems to provide RI to commanders and other leaders when needed ultimately depends on the continuous updating of guidance concerning the information needed to make decisions. For commanders, this means updating the CCIR based on changes in the decisions they expect to make.

3-47. Commanders base their IM guidance on the following factors:

- Degree of willingness to cope with uncertainty.
- Number and type of decisions the commander expects to make personally.
- Whether the needed RI can be obtained.
- Gaps in RI needed for specific decisions.
- Ability of subordinates to understand the commander's intent.
- Availability of liaison officers and informal communications networks.

Relevant Information

3-48. Information becomes RI if it supports exercising C2 for a mission, and if it is accurate, timely, usable, complete, precise, and reliable. RI provides the basis for creating and maintaining the COP and the substance of execution information. It is the basis for achieving situational understanding. (See appendix B.)

3-49. Commanders determine IRs and set IM priorities. If they request too much information, the staff's chances of obtaining the RI decrease. Similarly, staffs should collect, analyze, and disseminate RI that answers CCIR or parts of CCIR ahead of routine reports. Routine or irrelevant details may conceal answers to CCIR and slow processing and communication. The quest for complete information consumes too much time and places an unreasonable burden on information sources. At worst, it corrupts the trust required for mission command. Subordinates who worry over every detail rarely have the resources or desire to take the initiative.

Information Management Activities

3-50. IM consists of five activities: collect, process, store, display, and disseminate. In practice the different activities overlap, effectively complementing each other.

3-51. **Collect. As an information management activity, *collect* is to continuously acquire relevant information by any means, including direct observation, other organic resources, or other official, unofficial, or public sources from the information environment.** Commanders set priorities for collecting by establishing CCIR. They continuously revise them throughout the operations process, as the situation changes. Collecting takes two forms: information push and information pull.

3-52. An *information-push* system collects information by pushing it from the source to the user, either as the information becomes available or according to a schedule. The advantages of information push are that commanders do not need to request the information, except initially, and the information arrives on a predictable schedule. This system is best for managing routine reports, including information that is not time sensitive. A properly designed information-push system lessens the problem of distracting subordinate units with excessive requests for information.

3-53. An information-push system does not work well in filling unforeseen IRs, especially important, time-sensitive information. While an information-push system may push RI to those who need it, it does so only if commanders widely distribute the CCIR and continuously revise them as the situation changes. Trying to anticipate all the commander's needs under an information-push system can lead to attempts to deliver all possible information rather than RI alone. This situation leads to information overload. Commanders avoid it by establishing and continuously revising the CCIR.

3-54. Under an *information-pull* system, users request information as they need it, and sources respond with the information. An information-pull system does not anticipate information needs, but reacts to demands. If the information is readily available, the source fills the demand quickly and efficiently. A common database can serve this system by allowing authorized users to query it for information and receive it in the requested format.

3-55. If the information is not readily available, the demand—or accumulated demands—triggers a "demand cascade" as the requirement filters through the C2 system until it reaches the appropriate collecting organization. A single demand by a higher headquarters produces multiple demands at lower echelons. Thus, even a single demand can produce a "cascade." Excessive information demands burden lower echelons, especially in centralized C2 systems in which all information passes to the senior echelons. A demand cascade can produce information overload when commanders request unnecessary quantities of information. To avoid demand cascade, commanders keep some dedicated collection assets that answer directly to them, such as directed telescopes. (See paragraphs 3-102–3-105.)

3-56. An information-pull system helps focus scarce resources on critical tasks. It delivers information tailored to RI commanders' need and only produces information to fill those IR. These characteristics can be both

strengths and weaknesses. They can be strengths because information flow is tailored to established IRs. However, they can be weaknesses because there are often unstated or unidentified IRs that go unsatisfied under an information-pull system. One definite disadvantage is the cost in time and timeliness that occurs when the search for information does not begin until the commander identifies an IR.

3-57. ***Exceptional information*** **is specific and immediately vital information that directly affects the success of the current operation.** It would have been one of the CCIR if it had been foreseen; it is therefore treated as one of the CCIR. Exceptional information usually results from discovering something unanticipated about an enemy. It allows the commander to take advantage of an unexpected opportunity to defeat the enemy or to avoid a surprise that could lead to a friendly defeat. Exceptional information is reported to the commander immediately by any method available.

3-58. Effective C2 systems combine the best characteristics of information-push and information-pull collection. Information push is the more efficient way to provide information needed routinely. The C2 system should anticipate commanders' IRs and manage routine information by pushing it to an easily accessible local database. Commanders then use information pull to obtain only the information they need from that database. This solution avoids the danger of information overload associated with information-push collection. It also eliminates some delays normally associated with information-pull collection. Although a strict pull system generally requires more time to collect and process information, a near real-time ISR capability should support both pull and push capabilities. Commanders need both capabilities in their C2 systems.

3-59. Commanders will likely not recognize all their information requirements initially, so the C2 system must ensure that truly critical, time-sensitive information is pushed directly to them without delay. This might mean skipping intermediate echelons of command, although in most cases all echelons should receive such information simultaneously. Echelon skipping does not mean, however, that intermediate echelons remain uninformed. After passing critical information directly between the concerned echelons, both echelons should inform intermediate echelons through normal channels.

3-60. **Process. As an information management activity,** ***process*** **is to raise the meaning of information from data to knowledge.** Processing adds meaning to data and information through progressively higher-level and complex cognitive methods. (See figure 3-3 on page 3-14.) It contributes to creating the COP. Processing includes lower-level mechanical methods; such as, organizing, collating, plotting, and arranging data and information. However, effective processing requires the higher-level cognitive methods of analysis and evaluation to convert information into knowledge that supports situational understanding. Higher-order processing depends primarily on the insight that well-trained and adaptive analysts available at higher echelons provide. Effective IM and INFOSYS disseminate these products to users throughout the organization. Where commanders do not have access to these products, they do their own analysis and evaluation to process available information into knowledge themselves. Commanders apply judgment to knowledge to achieve situational understanding. That, combined with

intuition, enables them to make informed decisions with less-than-perfect information.

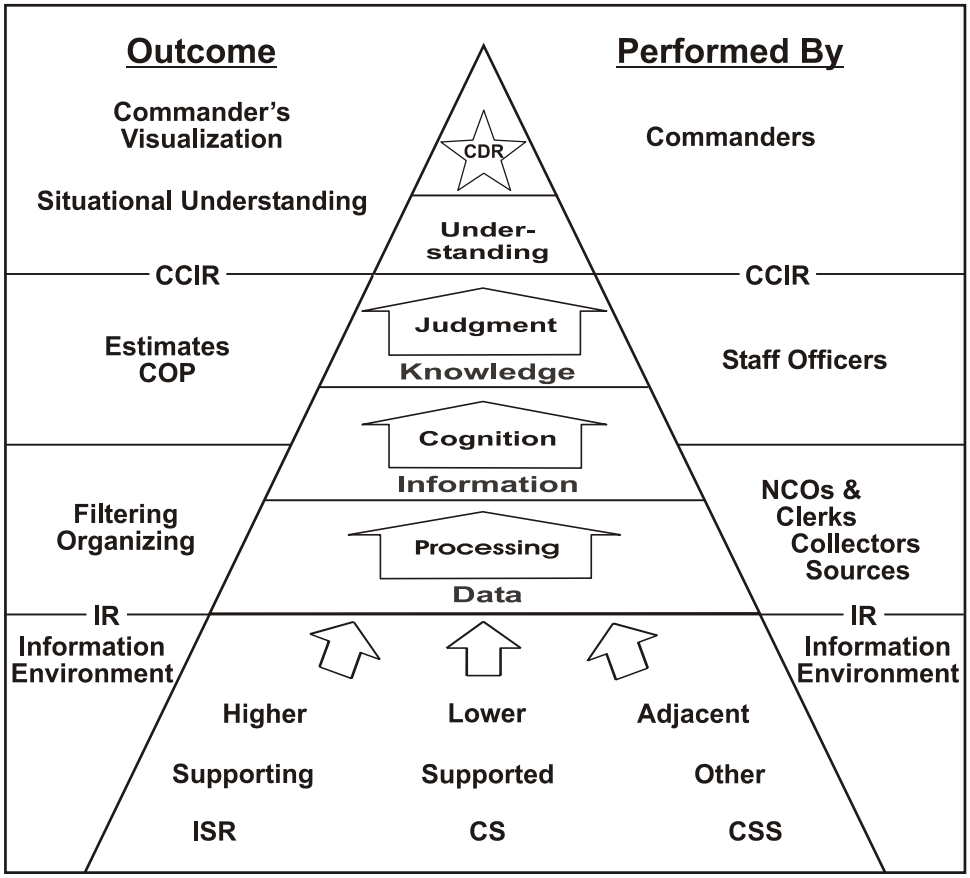


Figure 3-3. Processing Information

3-61. Incoming data are not information until they have meaning added by processing. At higher echelons, staffs are major contributors to processing. In organizations without staffs, commanders themselves explicitly or implicitly raise the meaning of information they receive. For example: A platoon leader collects *data* by observing enemy actions to the front. After reporting this observation to the commander, the platoon leader processes the data into *information* by portraying those actions on a map as graphics. Considering friendly plans and actions, the platoon leader applies existing knowledge of enemy operations to the observations and analyzes their meaning to anticipate possible enemy actions. He then evaluates the effects of possible enemy actions on his and the higher commander's mission. He also considers the effects on the enemy of any actions his platoon might take. These thought processes constitute cognition, the act of learning or integrating various pieces of information. It raises information (the actions portrayed on the map) obtained from processing data (the observation of the enemy) into *knowledge*. Finally, after applying judgment to *understand* the situation, the platoon leader decides if he needs to do anything to counter the enemy's actions.

3-62. An important processing tool is *collaboration*. Collaboration involves real-time or near real-time audio and visual communications. At higher echelons it may include video teleconferences and white-boarding. At lower echelons it may involve only radio conversations and meetings. Collaboration can serve to discuss the COP, update IRs, generate knowledge, improve the commander's visualization, share situational understanding, and improve decisionmaking. Collaboration disseminates knowledge and improves situational understanding, both horizontally and vertically.

3-63. Processing filters, fuses, and prioritizes information. *Filtering* means assessing the value of information and removing what is not pertinent or important. Staffs (or commanders personally in units without staffs) filter data and information to identify RI and create the COP. Effective filtering requires specific criteria expressed in these terms: timeliness, accuracy, usability, completeness, precision, and relation to the CCIR and other IRs. *Fusing* integrates information into an easily usable form at an appropriate level of detail. *Prioritizing* expedites information flow by indicating and displaying the relative importance of different RI. The prime example of this prioritization is the CCIR. Prioritizing demands a clear commander's visualization and understanding of the commander's intent by subordinates. Effective prioritization allows the staff to quickly identify information that answers the CCIR.

3-64. Commanders apply their education, experience, intuition, and judgment to transform knowledge into situational understanding. During planning and preparation, situational understanding contributes to the commander's visualization. Accurate situational understanding leads to a commander's visualization that includes a clear commander's intent and comprehensive planning guidance. During execution, accurate situational understanding supports fast decisions and better C2.

3-65. **Store. As an information management activity, *store* is to retain relevant information in any form, usually for orderly, timely retrieval and documentation, until it is needed for exercising command and control.** C2 systems store information because not all information collected or processed can be displayed at the same time, nor is it relevant at all times. The DA Form 1594, Staff Journal, is a primitive storage means. It retains information or analyses of past outcomes for future use; however, it is difficult to rapidly resort, reorder, and analyze data recorded on this form.

3-66. Common databases provide powerful tools for transforming data into the information and knowledge required for decisions. Data in a database can be stored, ordered, and structured based on data models reflecting commanders' decisionmaking needs. For example, software applications allow analysts to sort, store, organize, and query data by unit identification, geographic location, resource status, or consumption. This versatility helps them quickly answer specific questions in terms the questioner understands. A variety of software applications can use and share this data for multiple purposes. A database provides a bridge allowing different systems with different purposes to work together. For example, data on the location and identification of friendly units, when processed and compared with other data, can both help commanders achieve situational understanding and assist in clearing artillery fire missions. Through a database, multiple

applications can simultaneously use the same data for different purposes at different echelons.

3-67. **Display. As an information management activity, *display* is to represent relevant information in a usable, easily understood audio or visual form tailored to the needs of the user that conveys the common operational picture for decisionmaking and exercising command and control functions.** There are three ways to display information: graphic displays, written reports, and verbal narrative reports. Graphic displays are discussed below. FM 5-0 discusses written reports and verbal narrative reports.

3-68. Effective graphic displays are meaningful images, rather than masses of data. Staffs use standard formats and doctrinal terms and graphics to organize displays and present information. Standard formats ensure that all RI is included and help users find needed information. Displays shorten communications because they do not require lengthy instructions. Properly executed, displays aid communication and understanding.

3-69. Graphic displays visually represent current or future operational information. They may use automated or manual means. When possible, commanders and staffs graphically portray quantifiable information using standard formats. Effective graphic displays—

- Use symbols, graphics, and terminology consistent with FM 1-02.
- Show only RI.
- Show information clearly and understandably.
- Include accurate, reliable, and timely information.
- Can be promptly and easily updated.
- Can be quickly disseminated to higher, lower, and adjacent units.

3-70. Display is more than just the communication and portrayal of data and information. The quality of the presentation contributes to the assimilation and development of knowledge. A good display allows commanders to look across the area of interest in space and time, rapidly focus on decisive points, and identify opportunities, threats, and information gaps. Good displays also allow commanders to communicate execution information to subordinates in terms they understand.

3-71. **Disseminate. As an information management activity, *disseminate* is to communicate relevant information of any kind from one person or place to another in a usable form by any means to improve understanding or to initiate or govern action.** It takes two forms: broadcast dissemination and point-to-point dissemination. Effective IM combines broadcast and point-to-point dissemination based on the situation and available INFOSYS.

3-72. Senders may *broadcast* information simultaneously to a broad audience—anyone with access to the C2 system. The great advantage of broadcast dissemination is that it gets information to the widest audience in the shortest time. For generic information, this method may be efficient. However, the information cannot be tailored to a specific user's needs. Perhaps the greatest drawback of broadcast dissemination is that its undisciplined use can quickly lead to information overload.

3-73. In *point-to-point* dissemination, information goes to a specific user or users. It then passes sequentially from one user to the next. Point-to-point dissemination has two advantages. First, information can be tailored to the needs of each recipient. Second, point-to-point dissemination has built-in control mechanisms that broadcast dissemination lacks. Each node in the sequence can filter and integrate information before passing it on—tailoring information to the needs of the next recipient and lessening the risk of information overload. The major disadvantages of point-to-point dissemination are that information reaches a broad audience slowly, and the chances of distortion increase with each node.

COMMUNICATIONS

3-74. The traditional view of communication within military organizations is that subordinates send commanders COP-related information and commanders provide subordinates with decisions and instructions. This linear form of communication may be consistent with detailed command but it is inadequate for mission command. Mission command requires interactive communications characterized by continuous feedback. Feedback provides the means to improve and confirm mutual understanding. This applies to lateral as well as vertical communications.

3-75. Accurate situational understanding requires RI from all BOS. Communications is the key for commanders obtaining this RI. As commanders structure their C2 systems and establish their information priorities, they consider the requirement for communications. Communications shortfalls that have existed in the past must be corrected so that commanders have the unobstructed and full information that supports achieving accurate situational understanding.

3-76. Humans communicate both verbally and nonverbally. Evidence suggests that, in face-to-face conversation, humans communicate more by nonverbal means than by the words they use. (Nonverbal means may be vocal or nonvocal. Vocal means include sounds, such as sighs and grunts, as well as voice tone and inflection. Nonvocal means include such things as gestures, body language, and facial expressions.) Teleconferencing and other collaboration means allow commanders to obtain the benefits of face-to-face communication without traveling to distant locations.

3-77. In peacetime, commanders are tempted to rely too much on written communications. Although modern INFOSYS facilitate this approach, written papers, briefs, and directives may not have the same impact as oral orders, consultations, and briefings. Modern word processors provide the ability to produce vast amounts of writing, but effective commanders avoid this tyranny. Just because the capability exists does not mean it should be used this way; quality rather than quantity best serves communications in command.

3-78. *Implicit communication* involves achieving mutual understanding and cooperation with a minimal amount of information transmitted. People communicate implicitly if they have formed a familiarity of shared experiences and a common outlook. Implicit communication is a function of an individual's personal, military, cultural, and national expectations. It consists of

personal and organizational styles, habits, experiences, beliefs, and values. Implicit communication takes place when members of a group internalize and share explicitly stated standards, norms, or values. It also takes place through individuals adopting the command's styles, habits, experiences, and beliefs as their own (becoming socialized).

3-79. Through implicit communication, a key phrase or slight gesture can sometimes communicate more than a detailed order. Since such implicit communication reduces the time spent drafting and relaying messages, it reduces the problems of delay typically associated with information flow. Implicit communication helps maximize information content while minimizing data flow. It makes organizations less vulnerable to communication disruptions.

3-80. While conciseness is a virtue, so is a certain amount of redundancy. Used within reason, communications redundancy can improve clarity of meaning and reduce disruptions. Effective communications consequently exhibit a balance between conciseness and redundancy. The ability to communicate implicitly reduces the need for redundancy.

3-81. Since each person who handles information changes it, important information should pass directly between principal users. Doing this eliminates intermediaries, such as equipment operators. Humans communicate both by what they say and do, and how they say and do it; therefore, commanders and staffs should communicate face-to-face whenever possible. This does not mean they do not keep records of communications. Permanent records are important as a means of affirming understanding for later study and critique. They also assure understanding over time, whereas memory may distort or even forget elements of the information required or passed.

Channels

3-82. Information normally moves throughout a force along specific transmission paths, or channels. Structure, in the form of command relationships, establishes these channels. Channels help streamline information dissemination by ensuring the right information passes promptly to the right people. Channels disseminate both COP-related information and execution information. Commanders and staffs communicate through three channels—command, staff, and technical:

- *Command channels* are direct chain-of-command transmission paths. Commanders and authorized staff officers use them for command-related activities.
- *Staff channels* are staff-to-staff transmission paths between headquarters. They are used for control-related activities. They transmit planning information, controlling instructions, and other information to support C2. The intelligence and admin-log nets are examples of staff channels.
- *Technical channels* are the transmission paths between two technically similar units or offices within a command that perform a technical function requiring special expertise. Technical channels are typically used to control performance of technical functions. They are not used for conducting operations or supporting another unit's mission. For

example, the staff can pass a military deception plan up and down the technical channel before it is approved.

3-83. Crosstalk between subordinate commanders can transfer information and lead to decisionmaking without the higher commander becoming involved, except to affirm, either positively or through silence, the decisions or agreements of the subordinates. However, commanders must train their subordinates to crosstalk, so they can quickly and competently exchange information, reach decisions, and open up the command net for others. An example of an organization trained this way was VII Corps in 1991.

Crosstalk in the Desert—VII Corps in the Gulf War

On the morning of 17 January 1991, the day after the start of U.S. Central Command's major air operation against Iraq, the VII Corps commander, LTG Frederick M. Franks Jr., was with the 1st Infantry Division as it honed tank and Bradley gunnery skills in the desert of Saudi Arabia. While there, he received a spot report from BG John Landry, corps chief of staff, over FM radio: "55 Iraqi tanks have crossed the Kuwaiti Border, heading southwest toward Hafir al-Batin and are engaging Egyptian coalition forces in what may be the beginnings of an Iraqi preemptive strike."

Within seconds, COL Johnnie Hitt, commander of the corps' 11th Aviation Brigade, entered the net indicating that he had monitored the report and alerted two Apache battalions that could respond in 30 minutes if necessary. At the same time, COL Don Holder, commander of the 2nd Armored Cavalry Regiment, the corps unit closest to the reported enemy, called to notify Franks that he had issued orders for 1st Squadron to send a unit forward to recon and make contact with the enemy. Those were the immediate and correct actions taken by commanders as a result of eavesdropping on the command net and having the confidence to act—confidence developed through training, teamwork, and trust among the key players of the VII Corps team.

Feedback

3-84. Feedback is information about the situation, flowing continuously to the commander. Feedback allows commanders to compare the actual situation to the commander's visualization, decide whether or not to adjust operations, and direct actions. Situational understanding is based on interpreting information received. New information that conflicts with the expectations established during planning requires commanders and staffs to validate those expectations or revise them to reflect reality. Feedback comes from many sources: subordinates, higher headquarters, or adjacent, supporting, and supported forces. It can arrive any time: before, during, or after operations. For feedback to be effective, the C2 system must process it into knowledge, identifying any differences between the desired end state and the situation that exists. Feedback contributes to an accurate situational understanding that allows commanders to exploit fleeting opportunities, respond to developing situations, modify concepts, or reallocate resources.

3-85. Feedback should not flow only from lower to higher headquarters as COP-related information; it should also flow from higher to lower headquarters. (See figures 1-1 on page 1-2 and 3-1 on page 3-3). Normally

information from higher to lower headquarters consists of execution information to adjust the subordinates' resources, concepts, or missions. However, it should also include COP-related information. Multidirectional information flow produces a reciprocal influence between higher commanders and subordinate forces that supports exercise of mission command. Fielding more digital INFOSYS will allow dissemination of such information as the commander's intent and situational understanding, feedback, and mission adjustments both horizontally and vertically. This capability will support achieving shared situational understanding among commanders. However, it will require subordinate commanders' communications personnel to manage the information carefully to prevent information overload.

FORMS OF CONTROL

3-86. Control takes two basic forms—procedural and positive. Military operations require both forms to offset the weaknesses of each. They complement each other and enhance operations. Commanders balance the two for each situation. One method of positive control, the directed telescope, is discussed separately because of its importance to commanders directly and personally. (FM 3-52 discusses control of airspace over the AO.)

Procedural Control

3-87. ***Procedural control*** **is a technique of regulating forces that relies on a combination of orders, regulations, policies, doctrine, and tactics, techniques, and procedures.** This form is most effective in static operations or when—

- Making a decision about future events.
- The situation is clear and ordinary.
- Task identification is easy and reliably made.
- How to accomplish the task is easily understood and conforms to prescribed doctrinal procedures.

3-88. Procedural control is less effective in generating correct actions for unusual contingencies. Moreover, if applied too prescriptively it can be inflexible and restrictive, and stifle initiative. Intelligent use of procedural control supports mission command by allowing commanders to initiate and direct the operation with minimum interference with subordinate units. It also allows them to focus on actions at decisive points during operations. Examples of procedural controls include unit standing operating procedures (SOPs), the commander's intent, recurring reports, doctrinal terms, and overlay graphics.

3-89. Procedural control frees commanders from having to make all decisions themselves. It can provide standard ways of accomplishing tasks or functions. Well-thought-out procedural controls also standardize routine matters, allowing better integration and synchronization of forces. With routine matters covered by procedural controls, commanders can focus their energies on matters that require creative thought.

3-90. **Doctrine and TTP.** Doctrine and its associated TTP are procedural controls that provide, in terms of existing capabilities, a common approach to conducting operations. By their nature, they govern process rather than

product or outcome. Doctrine is the most flexible; it deals with the fundamental principles that guide military actions. Doctrine includes a common language that enables all other methods of procedural and positive control.

3-91. *Tactics* is the employment of units in combat. It includes the ordered arrangement and maneuver of units in relation to each other, the terrain, and the enemy to translate potential combat power into victorious battles and engagements (FM 3-0). *Techniques* are the general and detailed methods used by troops and commanders to perform assigned missions and functions, specifically, the methods of using equipment and personnel (FM 3-90). Battle drills and crew drills are techniques. *Procedures* are standard and detailed courses of action that describe how to perform tasks (FM 3-90). Collectively, known as TTP, tactics, techniques, and procedures are doctrine-based and structure the way soldiers solve problems and implement decisions. They stem from time-tested theories and principles but are adaptable in application. TTP control more directly than doctrine, but when the two conflict, doctrine takes precedence.

3-92. **Control Measures.** Control measures, such as graphics on an operation overlay, help commanders establish procedural control. (See FM 1-02.) C*ontrol measures* are directives given graphically or orally by a commander to subordinate commands to assign responsibilities, coordinate fires and maneuver, and control combat operations. Each control measure can be portrayed graphically. In general, all control measures should be easily identifiable on the ground (FM 5-0). The type and extent of control measures are situation-dependent, although control measures have very specific, standing meanings. Commanders tailor their use of control measures to conform to the higher commander's intent. They also consider the mission, terrain, and amount of authority delegated to subordinates. Effectively employing control measures requires commanders and staffs to understand the purpose and ramifications of using each one and the limitations each imposes on subordinates' freedom of action and initiative.

3-93. Commanders use the minimum number of control measures needed to control their forces. Control measures limit subordinates' freedom of action, so commanders normally avoid control measures that restrict planning and routine actions. Each measure should have a specific purpose: mass the effects of combat power, synchronize subordinate forces' operations, or minimize exposure to fratricide.

3-94. The most important control measure is the boundary. Boundaries define the AO assigned to a commander. Commanders have full freedom to conduct operations within the boundaries of their AOs unless the order establishing the AO includes constraints. Boundaries themselves also act as constraints: they limit commanders by preventing them from creating uncoordinated effects outside the boundaries. (See FM 3-90.)

Positive Control

3-95. ***Positive control* is a technique of regulating forces that involves commanders and leaders actively assessing, deciding, and directing them.** Commanders use positive control to direct complex or vague tasks. However, overreliance on it tends to overload commanders with information

(or requests for information), increase their fatigue (as they attempt to decide too much or be in too many places), and cause subordinates to rely on commanders to make all important decisions. It can rapidly become detailed command. It is most useful in dynamic operations and in the following situations:

- The occurrences of forecasted events require a decision to implement one of several solutions.
- The situation is dynamic.
- Task identification by individual subordinates is difficult.
- Task accomplishment is complex; implementing actions are multifaceted; and several sets of solutions are possible, each explicitly described and involving multiple means.

3-96. Positive control is consistent with mission command. In exercising positive control, commanders may use their digital INFOSYS to assess without requesting information from subordinates. They can monitor subordinates' exercise of initiative and use command by negation to allow that initiative to proceed, while they reallocate resources to exploit the opportunity the subordinate seized. Examples of positive control include prescribing the date, time, and location for an event or activity; altering the resources, concept, or objectives of an operation; and ordering execution of a branch or sequel.

> *...avoid taking "firm control" or a "tight rein" over the battle...these measures are likely to hold back the offensive during a penetration or pursuit and thus damage their chances of success.*
>
> Marshal of the Soviet Union, Mikhail N. Tukhachevskiy
> Paraphrased from Richard Simpkin, *Deep Battle*

3-97. **Plans and Orders.** A *plan* is a design for a future or anticipated operation (FM 5-0). Plans always include assumptions, but they are not static. Commanders change, refine, and update them, based on continuing estimates and studies. Subordinates may use their commander's plans as a guide to action in the absence of orders about an event within the space or time covered by a plan. There are many types of plans and orders. Each type is used for a specific purpose. (See FM 5-0.)

3-98. An *order* is a communication, written, oral, or by signal, which conveys instructions from a superior to a subordinate (JP 1-02). An order communicates execution information that directs action. The source for any directive is the commander's decision—the initial planning product. An order is one way for commanders to convey their intentions to subordinates.

3-99. Orders should be timely, and as clear, simple, and concise as each situation permits. Mission orders convey the minimum information necessary for execution. They contain a simple, clearly stated commander's intent and concept of operations. An excellent example of one is VII Corps Field Order 18, 23 March 1944. It directed a six-division coordinated attack that encircled the Ruhr industrial region in Germany. (See FM 5-0.) This field order was only three typed pages, with an operations overlay, a fire support annex, and an intelligence annex.

3-100. **Liaison.** Liaison facilitates communication of COP-related information and execution information between the sending headquarters and the receiving headquarters. In addition to passing information, liaison personnel can add meaning and context to information they send and receive. Liaison personnel can also expedite passage of RI that answer CCIR and exceptional information. Liaison officers usually report to the chief of staff. (See appendix E.)

3-101. **Staff Visits.** Staff visits are not practiced as widely as they once were. However, in addition to assisting the unit visited, staff visits can give the sending headquarters valuable information about the view of operations at the headquarters visited. GEN George S. Patton Jr. believed these visits were valuable and required his staff officers to visit forward units once a week. Staff visits may or may not be by invitation from the visited headquarters, and they may be announced or unannounced. Staff visits should do no harm in the headquarters visited; they should not interfere with the visited headquarters' conducting operations, and the visitors should not require special treatment or resources from the visited headquarters.

Directed Telescope

3-102. One historical method of positive control is the use of a ***directed telescope*: a dedicated information collector—a trusted and like-minded subordinate—to observe selected events or units and report directly to the commander.** Directed telescopes often skip echelons when collecting and reporting. They report RI in a less-structured format than normal communications but tailor it to the commander's needs. If the commander briefs and trains them before their mission, directed telescopes are more effective. Directed telescopes are not always individuals. In his pursuit across France in August 1944, then-LTG George S. Patton Jr. used his Third Army's armored cavalry group elements as directed telescopes. Often he had information on his army's lead elements before his division commanders did. Unlike liaison officers, directed telescopes skip echelons, do not have standing relationships or assignments to a single headquarters, and report directly to the commander.

3-103. Directed telescopes generally augment regular reporting chains to avoid burdening lower echelons with additional information gathering requirements. They can validate information received through regular channels or obtain important RI more rapidly than through regular channels. It is important that directed telescopes not interfere (or be perceived as interfering) with the normal functioning of the chain of command. The perception of spying or intruding on the province of the subordinate commanders can damage the trust between seniors and subordinates vital to mission command.

3-104. Directed telescopes require their commander's authority for their mission and actions. There is no set rule for their authority, but two factors govern it: First is the experience, training, and personality of the directed telescope. Second is the sending commander's leadership style. Directed telescopes must also have the means to communicate with their commander or headquarters so they can transmit their information expeditiously. Finally, directed telescopes may pass their information to the local commander as a courtesy, but this is not mandatory.

3-105. Using directed telescopes remains a valid technique, even with the advent of modern INFOSYS. First, directed telescopes give commanders an informal, personal method to seek or clarify information they need make decisions. Second, directed telescopes gather intangible information and the context of tangible information that INFOSYS cannot. These improve the commander's situational understanding. Intangible information, such as morale and cohesiveness, is as important as tangible information. And the context of information may be more important to the commander than its substance. Third, the operational environment increasingly involves unified action. (See FM 3-0.) Operations often include ad-hoc organizations consisting of military, nonmilitary, and multinational organizations. These may require C2 TTP to overcome technology differences between the Army forces, multinational partners, and interagency organizations. Using directed telescopes is one such technique.

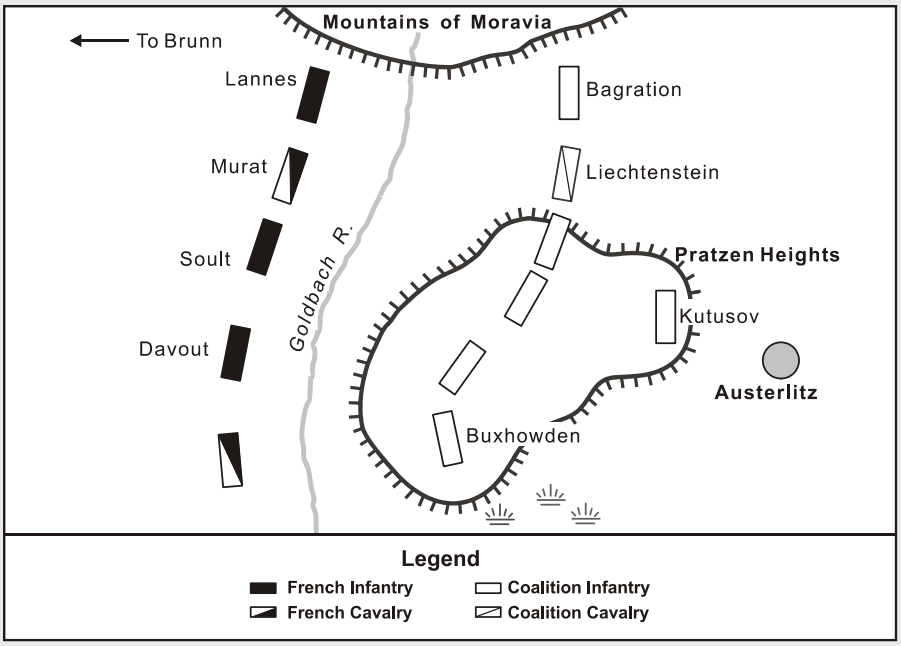
HISTORICAL VIGNETTE—THE BATTLE OF AUSTERLITZ

3-106. In the French campaign of 1805 against the Third Coalition—the British, Austrian, and Russian Empires—Napoleon Bonaparte defeated numerically superior forces and ended the campaign in the battle of Austerlitz. Control was a major factor in this victory. It contributed to Napoleon's situational understanding, allowing him to regulate his forces' execution within his commander's intent. It also allowed his forces to adapt to change with effective and timely actions. The timeliness of Napoleon's decisions and his forces' actions rendered his enemies' reactions progressively more irrelevant as the battle went on. It contributed to a victory that Napoleon always regarded as his finest, and that history considers a masterpiece of the military art.

Control in Command and Control—Austerlitz

Napoleon's Grande Armee of 1805 had spent two years training along the coast of the English Channel to invade England. On 3 September 1805, after the Third Coalition formed, Napoleon moved that army against the first opposing force that presented itself. His desired end state was to defeat it before the rest of the coalition forces could join the campaign. Napoleon marched east with 200,000 men. He defeated an Austrian army at Ulm in Bavaria by 20 October 1805 and pursued an approaching Russian army down the Danube River toward Vienna. On 23 November, he halted his pursuit east of Brunn (present-day Brno, Czech Republic) near the village of Austerlitz, 700 miles from the Channel coast.

The Russian army had joined another Austrian army to form a force that numbered 85,000 to Napoleon's 53,000. Napoleon decided to entice the coalition force to attack him before others could reinforce it. He displayed his weakness in numbers, which he let the coalition commanders see, and withdrew his main body from the Pratzen Heights, key terrain in the area he had selected for battle. The coalition force occupied that terrain on 30 November and prepared for battle. (See map 3-1.) Napoleon had two corps moving to reinforce his main body, increasing its strength to 73,000 before the battle: one joined him on 1 December; the other, with 50 hours to march 80 miles from Vienna, would not arrive until the day of the battle.



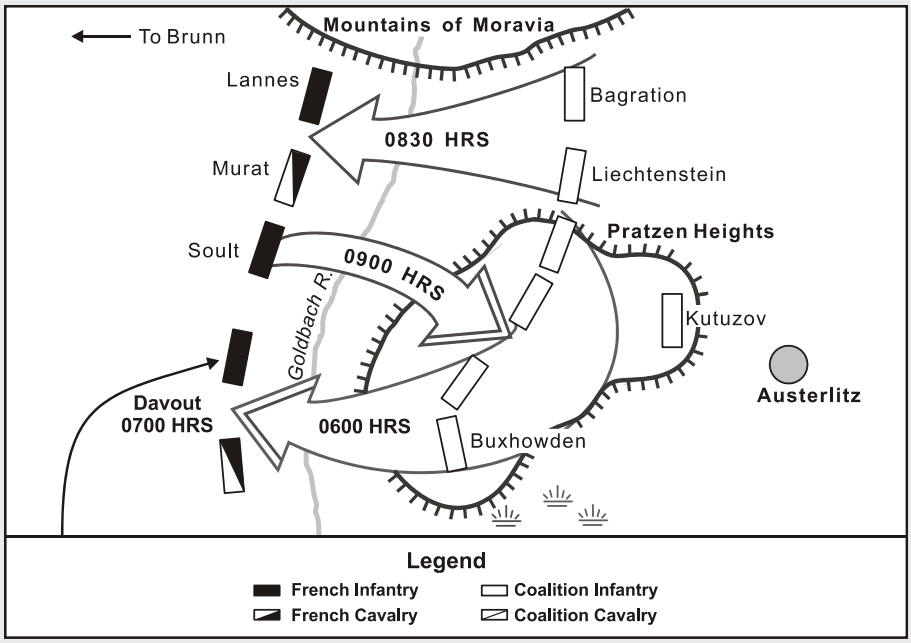
Map 3-1. Austerlitz—Initial Situation

Napoleon planned to show weakness on his right flank, which was held by a single division. This display would encourage the coalition commanders to attack there. He would hold on his left flank and attack the coalition center, where the coalition had taken forces to carry out their attack on his right. With his forces attacking in the center, Napoleon could either roll up the coalition forces attacking his left or, more decisively, envelop those attacking his right. Key to this was the timely (for him), unexpected (for the coalition) arrival of the corps from Vienna (under Marshal Davout). It reinforced his right as the coalition attack began.

The attack against Napoleon's right began at 0600 on 2 December and had intensified by 0700. (See map 3-2, page 3-26.) A coalition attack against his left also threatened but had not yet commenced. Davout's lead forces reinforced the French right by 0700, and the fight there continued for the next two hours. There a French force of 10,600 occupied a coalition force of nearly 50,000. By 0800, Napoleon, from his CP, could directly observe the majority of the coalition force moving against his right. The Pratzen Heights, key terrain that he had given up to entice the coalition commanders to give battle, was now uncovered. By 0830, Napoleon had also received reports about the tenacious, successful fight of his right and that his left was still secure.

Hidden from coalition view but within striking distance of the key terrain were two French divisions, 16,000 men and 16 guns, under command of "the finest maneuverer in Europe," Marshal Soult. Through the initial fight, Soult chafed to commence his attack, but Napoleon restrained him. At 0845, Napoleon turned to Soult and asked, "How long will it take you to move your divisions to the top of Pratzen Heights?" "Less than 20 minutes, sire," Soult answered. "Very well, we'll wait another quarter of an hour," decided Napoleon. By then, Napoleon knew that a coalition force had begun attacking his left. At 0900, Napoleon turned to Soult and directed him to attack: "One sharp blow and the war's over." By 0930,

Soult had taken the Pratzen Heights and was well on the way to securing it. The French left now also attacked the coalition right with coordinated infantry and cavalry actions under Marshals Lannes and Murat. By noon, this French shaping operation drove the coalition right back four miles, making it unable to move against the decisive operation on the Pratzen. Stationing himself in the center, Napoleon remained informed of events on both flanks but did not direct subordinate actions. Napoleon's situational understanding and ability to regulate his forces was enhanced by a semaphore (signal flag) station at his CP and relay stations throughout the AO.



Map 3-2. Austerlitz—Operations

Soult's assault of the Pratzen only began the struggle in the center. The Russian commander, Marshal Kutuzov, recognized the danger and recalled forces from attacking the French right to counter Soult's attack. The battle against this counterattack began about 1000 and continued through 1100. By noon, Napoleon had moved his CP and his reserve up to the Pratzen. The Russian Imperial Guard mounted another counterattack against the center at 1300, but the well-positioned French reserves, in coordination with Soult's forces, defeated them after much hard fighting by 1400.

This left Napoleon with the initiative to envelop either coalition wing. Napoleon had an accurate' situational understanding. He knew the coalition right could neither intervene against him nor support the coalition center (although it was still in good order and had good withdrawal routes). He was also aware that nearly half of the coalition force still engaged the French right, with a lake to their south. Accordingly, he directed his center to wheel south (to its right), taking the coalition left in the rear and destroying it. He left one corps in the center to secure the Pratzen Heights and his rear, while Soult's corps and Napoleon's Imperial Guard executed the envelopment to the south. By 1430, the coalition commander in the south recognized the peril to his force and directed its retreat. About half escaped the encirclement by 1500. Some of the encircled coalition forces

attempted to escape over the frozen lake to the south, but French artillery fired at the ice, breaking it and cutting off that avenue, while drowning over 200 men. By 1500, the coalition right wing began to retreat as well, and by 1630, as dark fell, all firing stopped. The coalition army was destroyed, over one-third of its force lost.

The coalition defeat had strategic significance. Austria sued for peace. The Russian Army withdrew to Russia. Prussia, the other major continental power, remained neutral. Napoleon's remark to Soult proved correct: one sharp blow did end the war. The Third Coalition was broken.

CONCLUSION

3-107. Control permits commanders to counter the effects of enemy actions, fog, and friction on operations. Commanders turn decisions into effective actions through procedural and positive control. IM supports control by providing structure to communications and transforming information in support of decisionmaking. Chapter 4 discusses how commanders combine the science of control with the art of command to train effective organizations in peacetime and exercise battle command during operations.